

## First Issue of the USGS-DoD Science Collaborator

Welcome to the first issue of the USGS DoD Science Collaborator. This is the first of a series of quarterly newsletters of the USGS Department of Defense Earth Science Program (DODESP) that will highlight science activities within USGS that directly benefit Department of Defense (DoD) services and agencies. This newsletter will facilitate communication from all USGS disciplines and its DoD partners. Articles will range from non-technical announcements to highly technical summaries of current projects. The DODESP hopes you will benefit from this communication forum and solicits your suggestions for future articles. These can include summaries on USGS projects at DoD installations and training lands, announcements of meetings, new agreements, new publications and new liaison positions, or just general information pertaining to USGS and DoD. This invitation is extended to our DoD partners as well. Articles for future issues of the USGS-DoD Collaborator will be accepted electronically and preferably in MSWord format. Please send them to Emitt Witt at [ecwitt@usgs.gov](mailto:ecwitt@usgs.gov) before the end of the first month of each quarter.

## USGS National Mapping Discipline Supports US Army Civil Affairs Brigade



Republic of Palau

National Mapping Discipline, Pacific Basin Liaison, Henry Wolter, assisted the US Army 364<sup>th</sup> Civil Affairs Brigade with a Disaster Preparedness and Mitigation Assessment (DPMA) of the island Republic of Palau. The Republic of Palau, Micronesia's westernmost island chain, is located between Guam, the Philippines, and Papua New Guinea. Palau is a more than 400-mile long archipelago that gives home to one of the world's most unique phenomena, the Rock Islands. Palau has long been known for its crystal clear waters and diverse population of tropical marine life.

Henry Wolter was part of an eight person team deployed to Palau from April 28 through May 2, 2003. The team focused on the goals and objectives established by the Office of the Palau Automated Land and Resource Information System (PALARIS) as outlined in their 2003 Management

Action Plan. The DPMA project consisted of two main components: preparedness and mitigation. The study of preparedness required gathering an inventory of critical resources, variable assets, and planning documents. The second component, mitigation, involved working with the PALARIS office to help improve their GIS capabilities so they can be effectively integrated as a tool for the National Emergency Management Office to plan and evaluate future disaster response.

## New Website Supports DoD with USGS Science and Data

The USGS Department of Defense Earth Science Program has established a new website designed to provide links to USGS data sources, current studies, published reports, and points of contact. The site also will provide a direct link to the Strategic On Line Defense Geography Repository (SOLDGR). SOLDGR is the USGS online map viewer that presents geospatial information for DoD lands. SOLDGR is powered by *The National Map* and takes advantage of its partnerships with Federal, state, and local government agencies. The website and SOLDGR are only available to '.gov' and '.mil' domains.



## USGS Assists National Guard with Firing Range Impact Area

The USGS, National Guard Bureau, and the Hawaii Army National Guard conducted a field level investigation of the lava flows at Kanio, Maui. These lava flows were formerly an impact area for field artillery and small arms training. The area currently belongs to the Hawaii Army National Guard, but is located adjacent to 'Hawaiian Homelands' designated property. The Hawaii Army National Guard would like to excess this property back to the State, but is concerned about remaining unexploded ordnance, and the perception that it exists because spent casings litter the area. On 17 July 2003 the group visited the area to determine the level of effort required to remove possible unexploded ordnance. The first step was to identify the primary direction of fire, the predominant impact area, and the types of munitions used in training at the site. USGS was able to provide information on the impact depths in the lava flow and potential erosion concerns should ordnance removal take place. Erosion is the most substantial concern given the slope of the area and the possible removal of vegetation before investigating the site with ground-penetrating radar. The Hawaii Army National Guard is working diligently to support environmental stewardship on training lands that can directly affect the quality of life within the adjacent 'Hawaiian Homelands'. The field visit was successful in identifying the areas of concern that will minimize land surface change yet allow the Hawaii Army National Guard to effect a pre-transfer clean up.



Major Francis Coulters (National Guard Bureau) and Emitt Witt (USGS) at boundary of firing range impact area, Kanio, Maui

## USGS and Air National Guard Discuss Bombing Range

John Powell (USGS DODEC), John Kilpatrick (USGS Montana), Tom Muir (USGS BRD) and Emitt Witt (USGS DODESP) met with several members of the Air National Guard to discuss possible ways USGS can support data collection at the Montana Air National Guard's new Belknap bombing range. Camp Belknap, located in north central Montana is the site of a future bombing range for the Air Guard's current fleet of supersonic aircraft. The area is rugged with little agricultural value and has supported ground base military training for many years. The Air National Guard proposes to gather a substantial amount of environmental information about the site before implementing training. The USGS was contacted to provide existing earth science data as well as provide ideas on where additional data should be collected. John Kilpatrick and Lance Clappitt (USGS NMD Montana Mapping Partnership Office) are working closely with local Montana National Guard personnel to provide

support and coordinate data-collection requirements that serve both the military and USGS missions.

## USGS Finds Microbes Correlate with Natural Attenuation at former Naval Air Warfare Center



The former Naval Air Warfare Center, West Trenton, New Jersey

Preliminary studies of the molecular ecology of the Naval Air Warfare Center fractured rock site in New Jersey have shown that the distribution of methanogenic Archaea vary spatially and depend on the kinds of contaminants present in the aquifer. Where petroleum hydrocarbon contamination coexists with chlorinated ethenes, Archaea comprise a higher proportion of the microbial population than in places lacking petroleum hydrocarbons. This distribution mirrors the redox processes already documented at this site using traditional geochemical methods. Quantitative PCR methods, using primers specific for enzymatic methanogenesis, sulfate reduction, and nitrate reduction, as well as phylogenetic identification of Fe(III) reduction



(*Geobacter sp.*) and chlororespiration (*Dehalococcodes sp.*) are being used to quantify the differences and similarities in microbial ecology between different redox zones. These results suggest that the techniques of molecular ecology may be useful in assessing the natural attenuation capacity of fractured rock-aquifer systems. For more information on this study, contact Frank Chapelle at [chapelle@usgs.gov](mailto:chapelle@usgs.gov).

## USGS and U.S. Army Sign Memorandum of Agreement



The USGS and the U.S. Army Engineer School, Terrain Visualization Center have entered into an agreement to support the development of a world-class GIS lab at Fort Leonard Wood, Missouri. This agreement outlines the support the USGS will provide the Terrain Visualization Center in helping them to establish the lab and fulfill the U.S. Army training mission. A copy of the new memorandum of agreement may be viewed and printed from the USGS Department of Defense Earth Science Program website at <http://DoDesp.er.usgs.gov:8088/index.html>. Any questions pertaining to this agreement should be forwarded to Emitt Witt at [ecwitt@usgs.gov](mailto:ecwitt@usgs.gov).

## Geospatial Partnering Center Established



The USGS, the University of Missouri-Rolla, the U.S. Army Engineer School Terrain

Visualization Center, the U.S. Army Topographic Engineering Center, and the National Imagery Mapping Agency, along with private industry and support from Missouri's congressional representatives, is establishing a Geospatial Partnering Center (GPC). The mission of the GPC is to coordinate government, academic, and industry expertise to facilitate development of enterprise solutions to complex geospatial problems affecting the Department of Defense, Department of Homeland Security, and the Federal, state and local governments. This center is being established because there is a recognized need for coordination of effort and agreement on interoperability to insert and develop geospatial technologies in combat, defense, security, and civilian applications. The GPC is located at the U.S. Army Fort Leonard Wood University Technology Park. More information about the GPC can be obtained by contacting Steve Tupper, [tuppers@umr.edu](mailto:tuppers@umr.edu), Emitt Witt, [ecwitt@usgs.gov](mailto:ecwitt@usgs.gov), Merrill Stevens [stevensm@wood.army.mil](mailto:stevensm@wood.army.mil) or Ken Bergman, [bergmank@wood.army.mil](mailto:bergmank@wood.army.mil).

## USGS has U.S. Navy on its Radar Screen

For the last 10 years the USGS has conducted several projects for the U.S.



Navy at various bases within the United States and its territories. The attached list of links represents several

published USGS reports on the subject of ground-water hydrology and

innovative sampling techniques at U.S. Navy facilities. These reports may be found along with other published USGS reports for military facilities, at:

<http://DoDesp.er.usgs.gov:8088/index.html> .

Additional information on USGS projects with the U.S. Navy can be obtained by contacting Bruce Campbell at 803-750-6161 or [bcampbel@usgs.gov](mailto:bcampbel@usgs.gov)

[Simulation of the Ground-Water Flow System at Naval Submarine Base Bangor and Vicinity, Kitsap County, Washington](#)

[Natural Attenuation of Chlorinated Volatile Organic Compounds in Ground Water at Operable Unit 1, Naval Undersea Warfare Center, Division Keyport, Washington](#)

[Evaluation of passive diffusion bag samplers in selected wells at the Naval Surface Warfare Center, Louisville, Kentucky, July 1999 to January 2000](#)

[Comparison of Passive Diffusion Bag Samplers and Submersible Pump Sampling Methods for Monitoring Volatile Organic Compounds in Ground Water at Area 6, Naval Air Station Whidbey Island, Washington](#)

[Ground-water flow in the surficial aquifer system and potential movement of contaminants from selected waste-disposal sites at Cecil Field Naval Air Station, Jacksonville, Florida](#)

[Ground-Water Flow in the Surficial Aquifer System and Potential Movement of Contaminants from Selected Waste-Disposal Sites at Naval Station Mayport, Florida](#)

[Evaluation of passive diffusion bag and dialysis samplers and nylon-screen samplers in selected wells at Andersen Air Force Base, Guam, March-April 2002](#)

[Field testing of passive diffusion bag samplers for volatile organic compound concentrations in ground water Naval Industrial Reserve Ordnance Plant, Fridley, Minnesota, November 1999 and May 2000](#)

[Diffusion sampler testing at Naval Air Station North Island, San Diego County, California, November 1999 to January 2000](#)

## **USGS Begins Planning Annual DoD Meeting**

Approval is being requested to hold the annual USGS Department of Defense meeting from May 3-7, 2004, in Gulfport, Mississippi. The purpose of this meeting is to convene USGS leaders, DoD partners, Federal and local regulators, USGS project personnel, technical experts, and other interested parties. The goals of the meeting are to accomplish technical transfer among USGS personnel and DoD attendees, conduct training in selected technical subject matter, document accomplishments of the past year, and demonstrate the capabilities of the USGS to partners and other interested parties. The format of the conference will include training sessions on earth-science issues, technical presentations, demonstrations and displays, short discussions, and a field trip to a nearby National Guard training area to observe the multidiscipline approach to managing and conserving natural resources. The point of contact for this conference is Emitt Witt, Chief, USGS Department of Defense Earth Science Program, 1400 Independence Road MS 319, Rolla, Missouri 65401, 573-308-3679, [ecwitt@usg.gov](mailto:ecwitt@usg.gov) .

## USGS Becomes Charter Member of the U.S. Army Corps of Engineers CADD/GIS Tech Center



Barb J. Ryan, Associated Director for Geography, signed the Charter for the CADD/GIS Tech Center officially making USGS an active voting member on 17 October 2003. The mission of the Center is to coordinate capabilities and needs for CADD, GIS, and Computer Aided Facility Management technology applications throughout DoD and the Federal, state, and local governments. The focus of the Center will be on an analysis of the specific information systems requirements defined by DoD and the Federal, state, and local governments. The Center also will serve as the Federal Geographic Data Committee Working Group on Facilities, Infrastructure and the Environment, actively supporting the National Spatial Data Infrastructure as defined by Executive Order 12906, Coordinating Geographic Data Acquisition and Access. USGS's participation in this group will facilitate interaction between DoD geospatial products and *The National Map* standards development. The USGS representatives for the Board of Directors and Corporate Staff are Kari Craun, Emmitt Witt, and Robert Rhinehart. More information can be obtained about the Center at <http://tsc.wes.army.mil/>.

## CADD/GIS Tech Center and USGS Partner on Project

The CADD/GIS Tech Center announced a solicitation for fiscal year 2004 (FY04) proposals in February 2003. Forty-one proposals from DoD agencies and participating civilian agencies were submitted with ideas ranging from geotechnical database development to drafting geospatial standards. After much deliberation among the Center's working groups and following the recommendation of the Corporate Staff, the Board of Directors unanimously selected several projects to be funded with FY04 dollars to support the core mission of the Center. A USGS proposal was among those selected to participate in the Center's FY04 program. The proposal seeks to investigate the use of the Spatial Data Standards for transportation, structures, and government units in *The National Map*. Lesli Bearden ([lbearden@usgs.gov](mailto:lbearden@usgs.gov)) of the USGS Mid-Continent Mapping Center is the leader of this effort.

## USGS Assigns Liaisons to USNORTHCOM



As part of the Agency's effort to provide support to Homeland Security, the USGS has assigned Sherry Durst and Lee Aggers of the Rocky Mountain Mapping Center to provide a liaison role with the U. S. Northern Command (USNORTHCOM). Sherry and Lee will facilitate USGS participation in USNORTHCOM exercises, provide data/information to enhance situational awareness, and develop web-enabled applications for

interagency situational awareness that draw from all USGS discipline assets. Sherry will be located at Peterson Air Force Base and Lee will provide the off-site support from the Rocky Mountain Mapping Center. Sherry and Lee may be contacted via email [sldurst@usgs.gov](mailto:sldurst@usgs.gov) , [sherry.durst@northcom.mil](mailto:sherry.durst@northcom.mil) , [lwaggers@usgs.gov](mailto:lwaggers@usgs.gov) .

### **USGS on Active Duty**

Part-time jobs became full-time jobs for 11 USGS employees who belong to the National Guard and Reserve. Fiscal year 2002 marked the beginning of active deployments of USGS employees who serve in the National Guard and Reserve. Three employees were deployed to Afghanistan in 2002, and 8 were activated for deployment to Operation Iraqi Freedom. At least one employee has been deployed for more than 2 years in both theaters. Several other employees have been activated for short periods to staff CONUS posts.